

Programming & the math behind it.

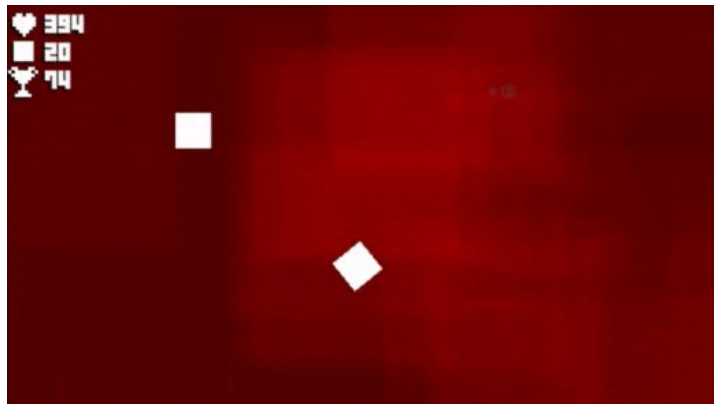


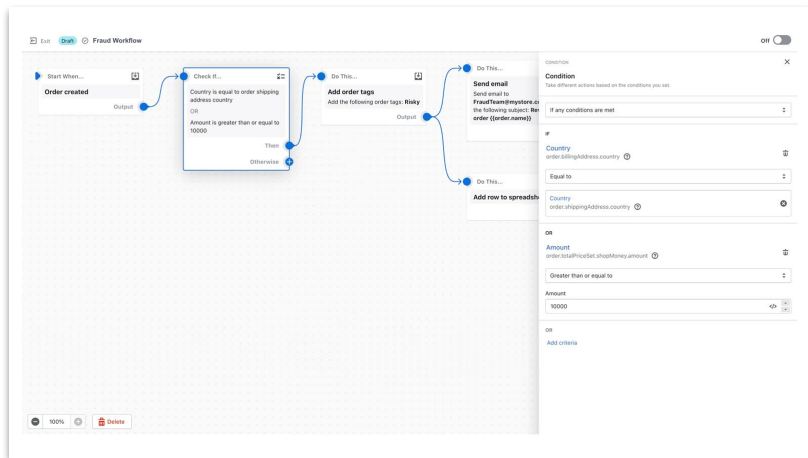
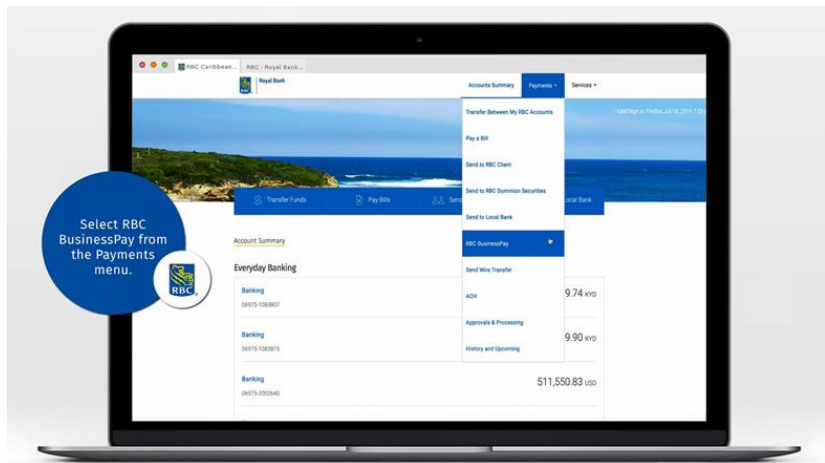
Matthew MacRae-Bovell

Hello! I'm **Matthew**

- Past Cedarview student
- Fourth Year Carleton CS Student
- Developer @ Shopify

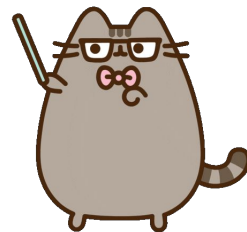






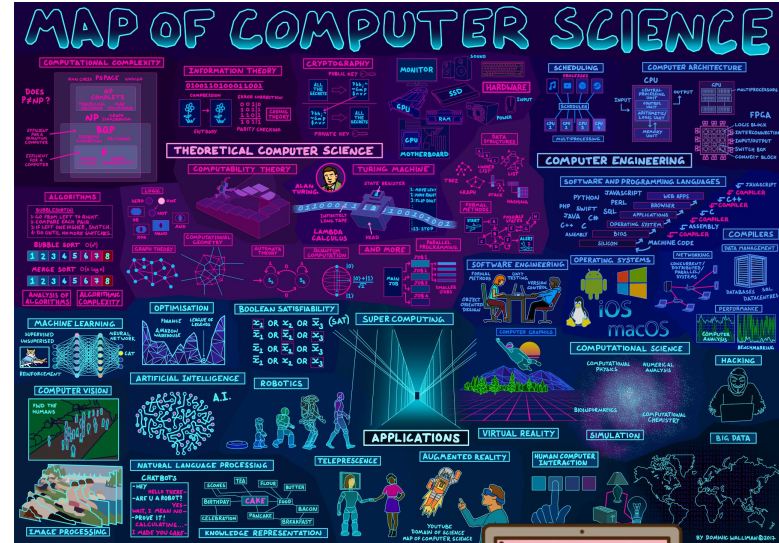
Agenda

- > **What is Computer Science?**
- > **Connecting Discrete Math to CS**
- > **Intro to Programming with Python**
- > **Building “Something Useful”**



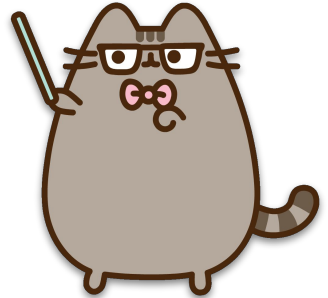
What is Computer Science?

- “The Study of Computers”...
- More software focussed in contrast to electrical or computer engineering
- Is it really a science? - Kinda... ?
 - More overlap with mathematics than traditional sciences like chemistry or biology



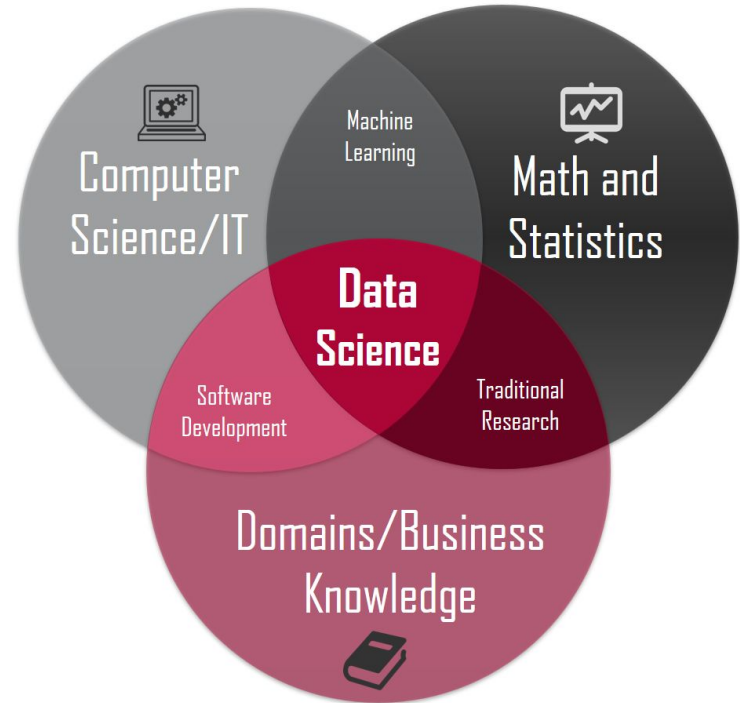
Do I need math to be a good programmer?

“At least partly, but it depends”



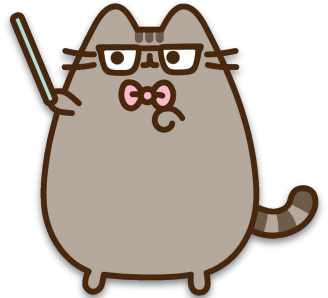
Career Paths

- Software Developer
- Frontend Developer
- Backend Developer
- Data Scientist (trends, ai, and more)
- Data Engineering
- Production / Infrastructure / Cloud Engineer
- Quality Assurance / Testing
- Business Analyst
- Product Designer



Not a perfect representation, but close...

**What math
do you need for
computer science?**

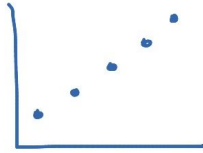


Discrete vs Continuous Data

“Mathematical logic”

Discrete mathematics is the study of mathematical structures that are countable or otherwise distinct and separable. Examples of structures that are discrete are combinations, graphs, and logical statements.

Discrete



Continuous

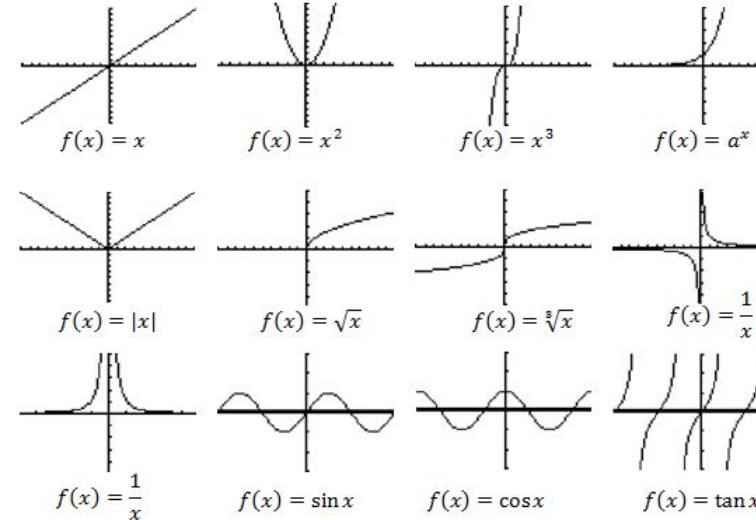
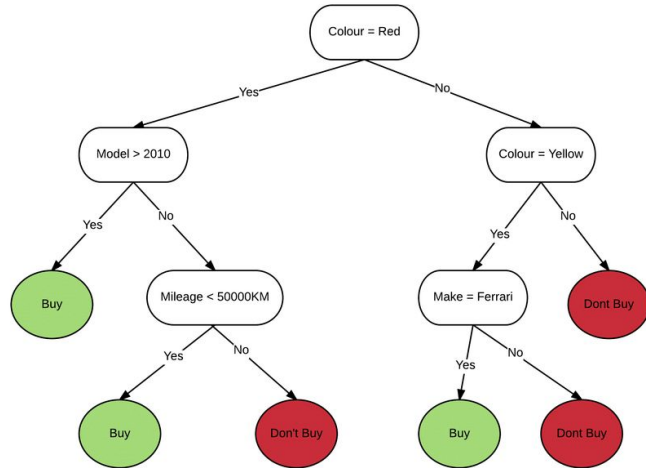
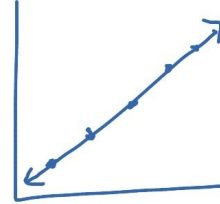
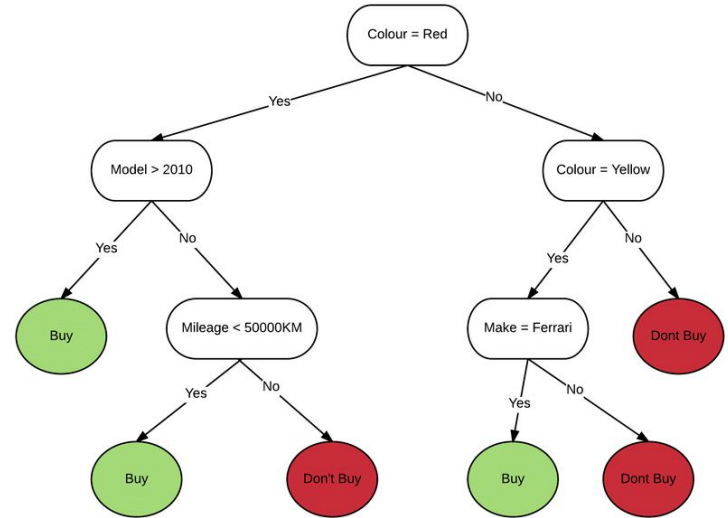


Figure 5

General Logic Terminology

- **Proposition** - is a question, could be true or false (**if statement**)
- **Predicate** - a statement that has a value of true or false
- We can answer questions (propositions) with facts (predicates).

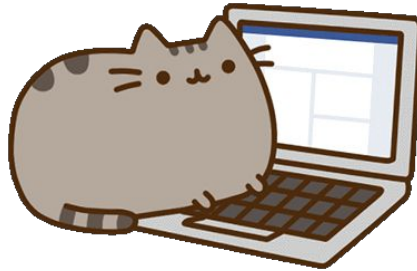


Introduction to Python

- Python has a simple syntax similar to the English language.
- Its “english” like syntax and simplicity make it popular amongst people transitioning from a math background into a computer science career



Time to Code!



**“Ok so what can I
do with this?”**



Questions?

